# CHAPTER 7
# PARKING

7-1. Introduction. Parking facilities must be provided at Corps areas to accommodate many and varied types of vehicles. The size of the facilities range from one parking space to several hundred. The cost of construction and impact on the site is usually considerable. For these reasons and others, it is important that these guidelines be followed as a matter of course.

7-2. Location.

a. Function.

(1) The parking lot or space should be located convenient to the area or facility it serves.

(2) Dead - end parking lots should be avoided.

(3) Provide vehicular/pedestrian separation where possible, and especially in large parking lots.

(4) When very large numbers of cars must be accommodated, use several small lots rather than one large parking lot if possible.

b. The terrain may place very real limitations on the location of a parking facility.

(1) Parking facilities should be developed on relatively level land to avoid excessive cut and fill. In order to accommodate the required number of cars it may be necessary to terrace for large parking lots.

(2) Grades not exceeding 6 percent parallel with the axis of parked vehicles and 8 percent transverse are permissable. Lesser grades are desirable.

(3) Drainage should flow to the naturally lower edge of a lot rather than the center.

(4) Erosion control measures should be provided to combat the increased quantity and acceleration of runoff.

(5) Preservation of the existing natural vegetation to the greatest extent possible should be one of the highest design priorities for parking facilities. Plans and specifications should clearly define the limit of clearing. To this end, it may even be necessary to limit the type and size of equipment allowed for clearing.

7-3. Layout. This paragraph is devoted to providing dimensional and geometric design guidelines for typical parking spaces and areas at Corps projects.

a. On-road parking, in any significant quantity, should be avoided. It reduces the traffic carrying capacity of the roadway, and it is usually unsafe and aesthetically displeasing. An acceptable use for on-road parking would be the small amount provided at a washhouse within a camping area. In this case, the low traffic volumes and vehicular speeds minimize the potential hazards. Also, by minimizing the site disturbance, the environmental and aesthetic aspects are less likely to suffer damage. When on-road parking is used, follow the guidelines in sub-paragraph b.(1)(a) & (b) below, and

(1) Increase 90-degree parking stall length by 4 feet,

(2) Increase 60-and 45-degree parking stall length by 2 feet, and

(3) Increase parallel parking width by 2 feet.

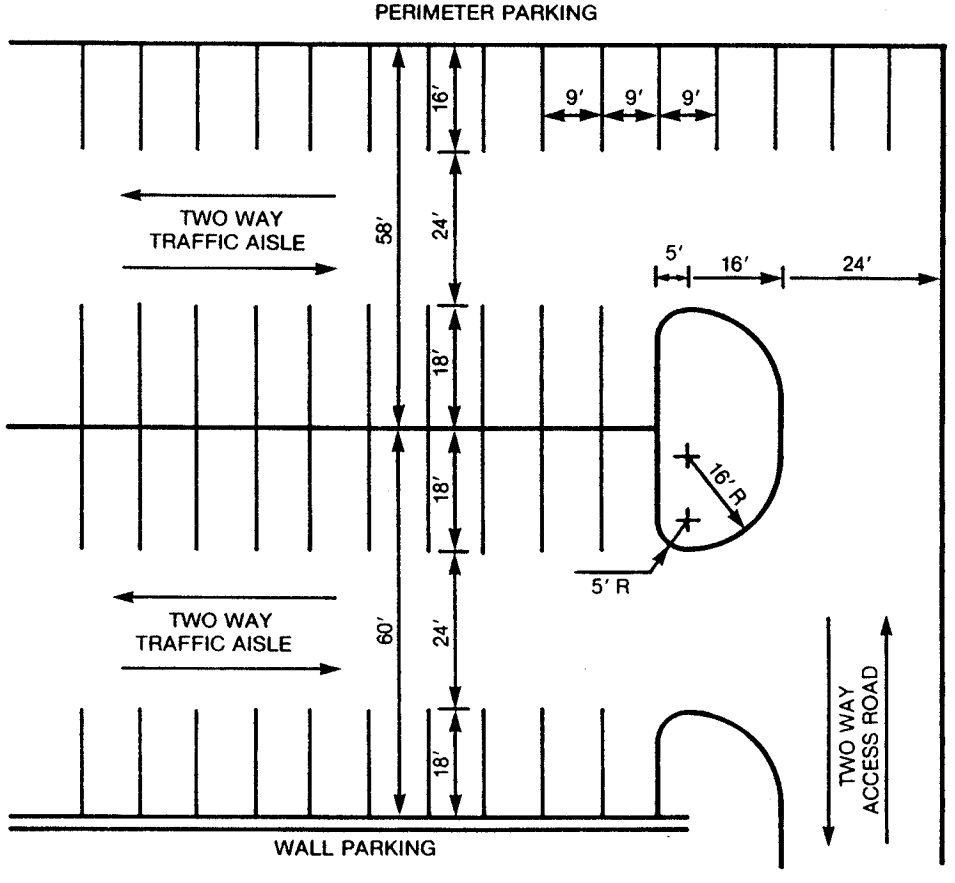



Figure 7-1 90-Degree Parking

b. Off-road parking is the preferred type of parking for most uses at recreation areas. It promotes safety, benefits vehicular circulation, and provides a pleasant and convenient transition between the roadway and the primary recreation activity.

(1) Mass parking is used for various size concentrations of day use recreationists at such diverse areas and facilities as beaches, picnic areas, and visitor centers to overlooks and comfort stations.

(a) Head-in parking is the predominent type of parking used in mass parking facilities. It is intended to be used by single unit passenger vehicles (for design guideline on parking vehicles with trailers see Chapter 4 Boat Ramps paragraph 4-5). Typical layouts with stalls arranged at 90 degrees, 60 degrees, and 45 degrees are illustrated in figures 7-1 through 7-3.

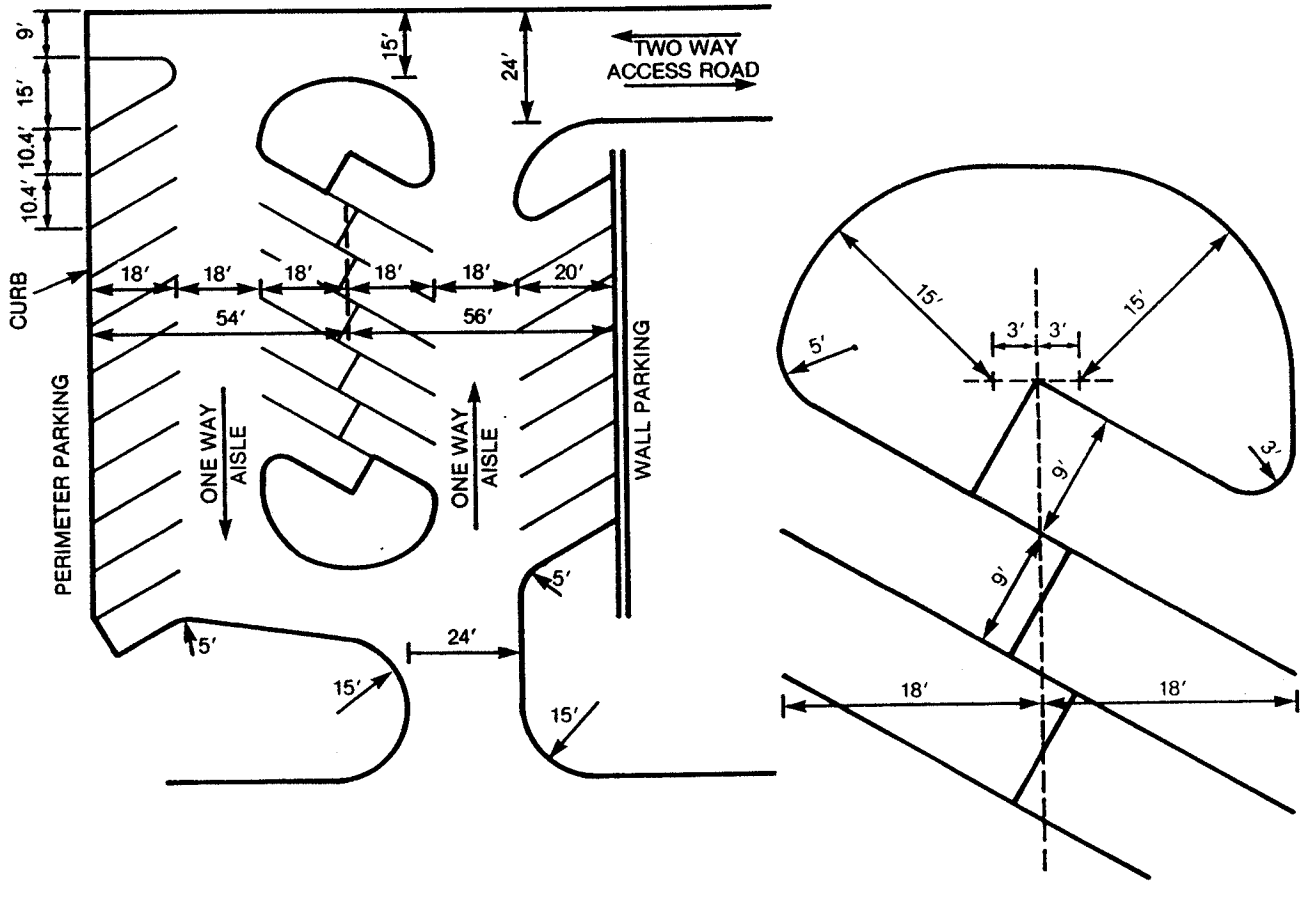
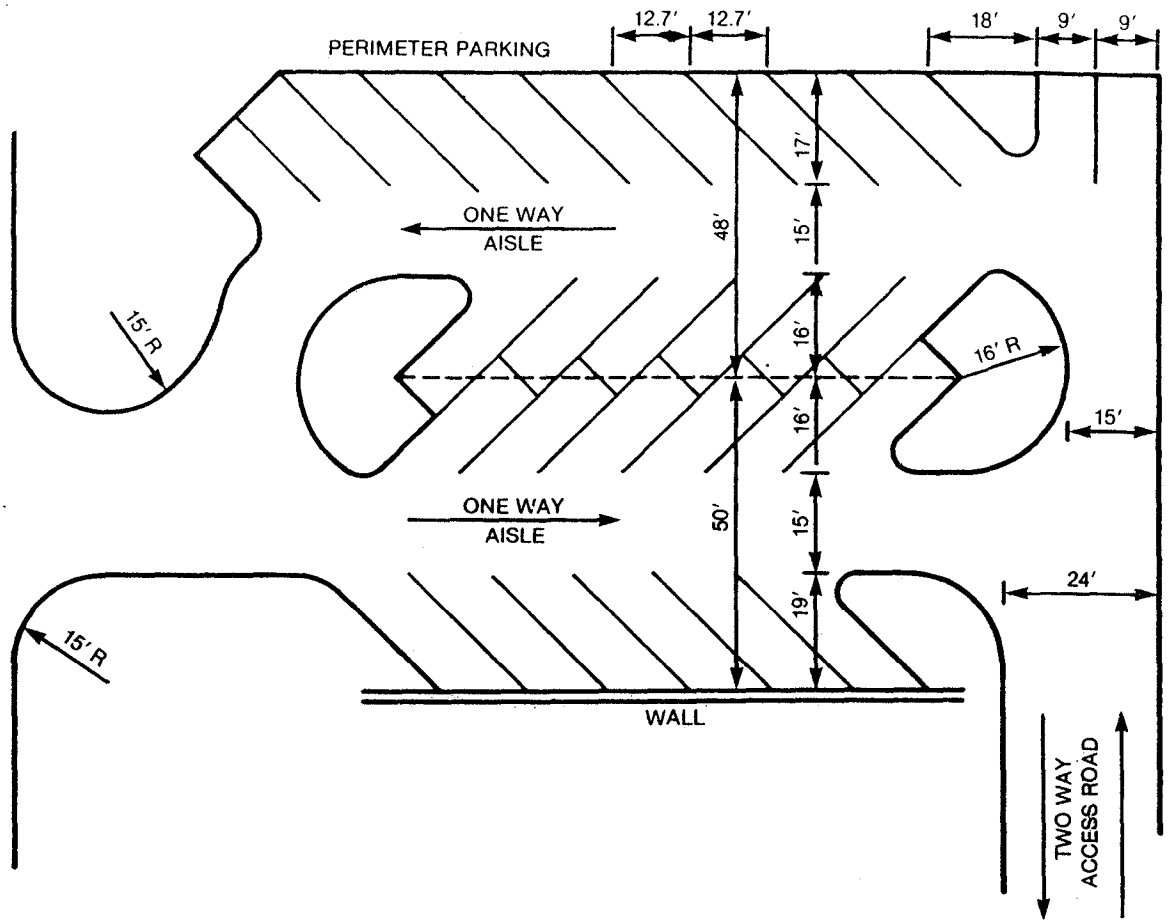



Figure 7-2 60-Degree Parking



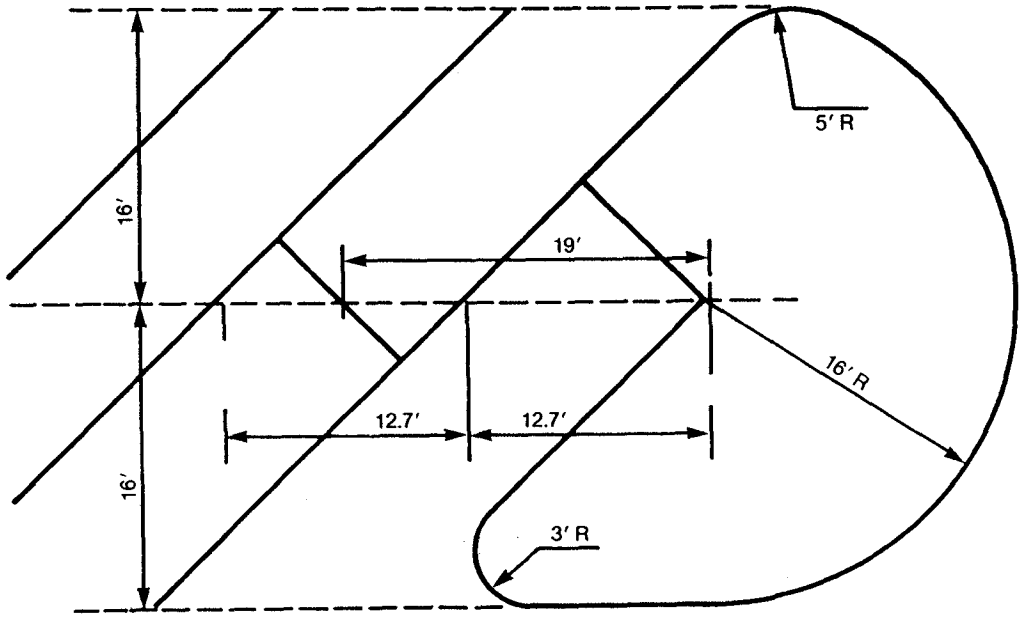




Figure 7-3 45-Degree Parking

(b) Parallel parking can be used very effectively where the terrain dictates a long and/or narrow parking facility. Typical layouts for Parallel parking are illustrated at figure 7-4. Parallel parking, on one side of an aisle only, is often the best choice for parking at an overlook. It is possible to utilize parallel parking on one side of an aisle and head-in parking on the opposite side to provide for the occasional bus or vehicle with a trailer that otherwise may be difficult and costly to accommodate. For bus or vehicle/trailer parking modify the typical parallel parking details in figure 7-4 so that:

1. The length for 1 bus or vehicle/trailer space will equal 2 regular spaces and

2. Increase the width of the stall by 2 feet

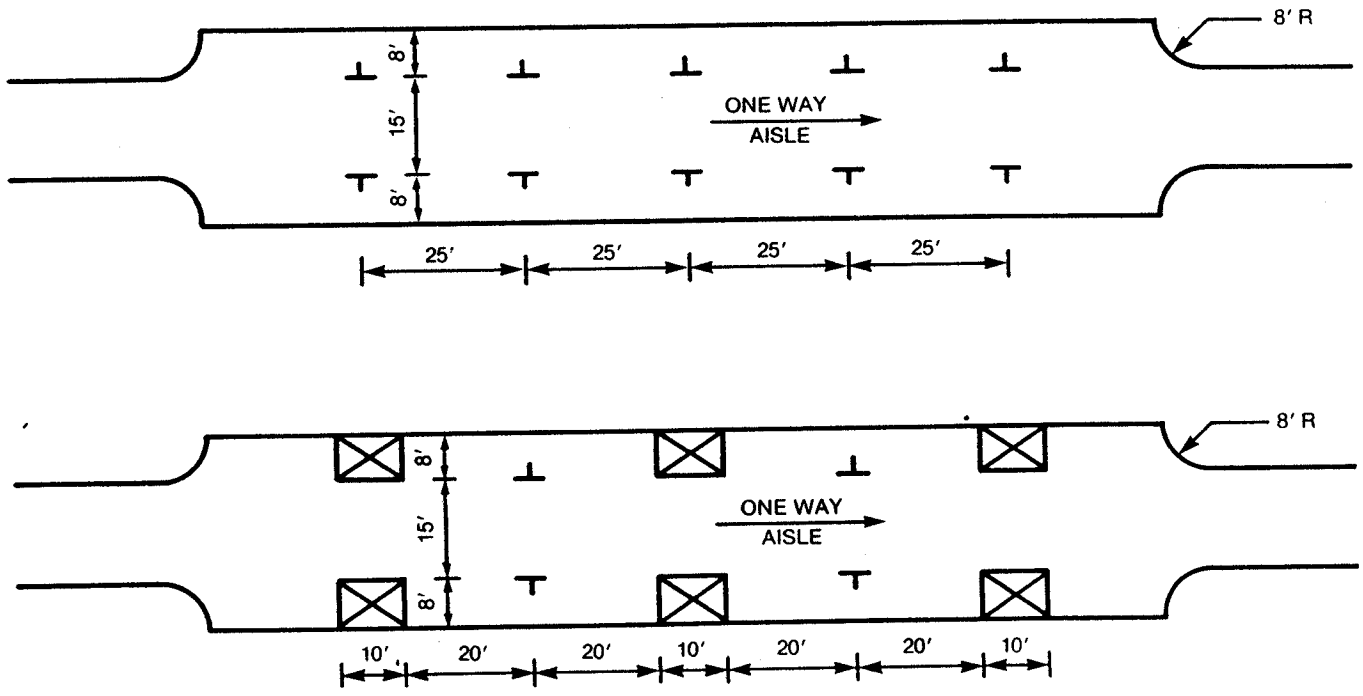



Figure 7-4 Parallel Parking

(2) Single vehicle parking is used primarily for individual camping sites and, to lesser extent, for short stops at signs or markers.

(a) Spurs are the preferred arrangement for parking at individual camp sites. Figure 7-5 illustrates a typical camp site spur.

(b) Pull-offs for a single vehicle should seldom have to be used. Overlooks, Vistas, historical markers, and the like, usually should be designed for parking more than one vehicle. However, a pull-off for a brief stop is sometimes essential. Figure 7-6 shows a typical pull-off parking space.

c. Terminal parking is the type of parking facility that is usually developed at the end of an access, circulation, or local road, when these roads terminate at an activity site such as an overlook, a picnic area, or a boat launch facility. Basically, the layout guidance in subparagraph b. above should be followed for the design of terminal parking. Figure 7-7 illustrates a simple terminal parking facility that can be used very effectively at an overlook or a small picnic area.

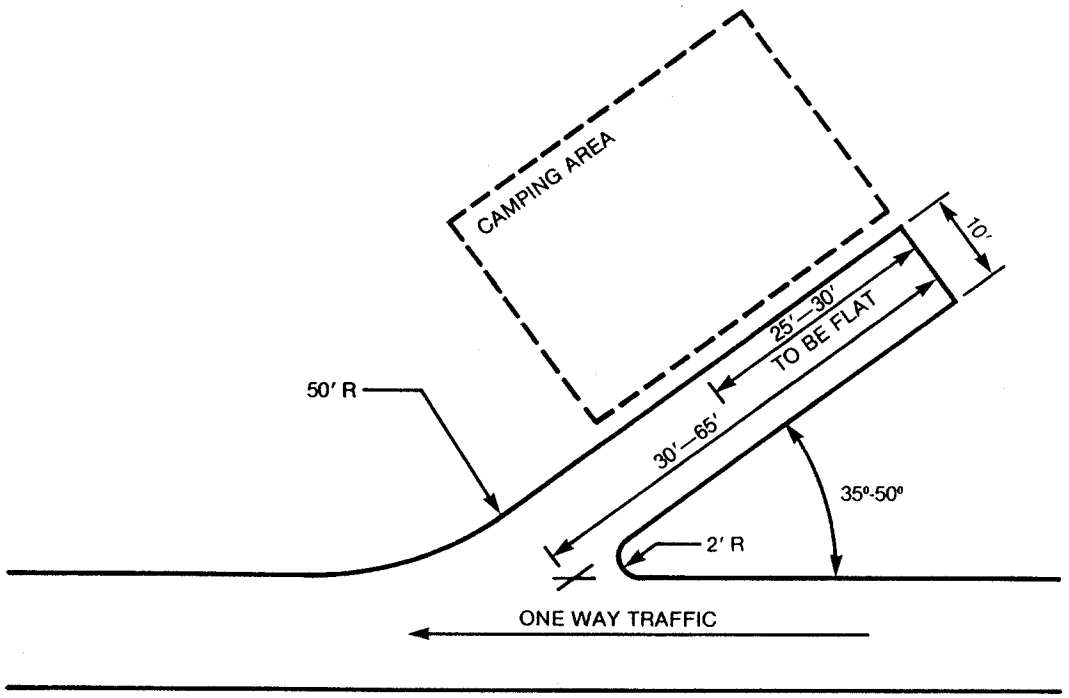



Figure 7-5 Spur Parking

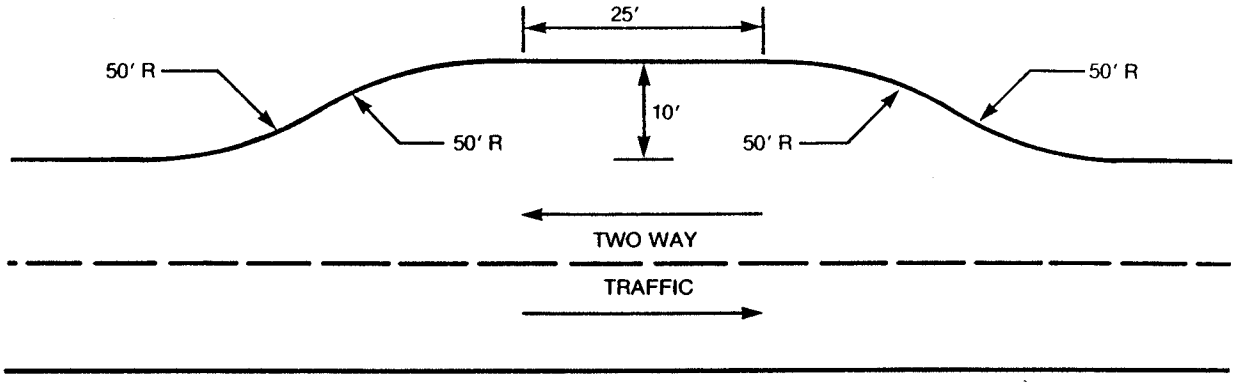



Figure 7-6 Pull-off Parking

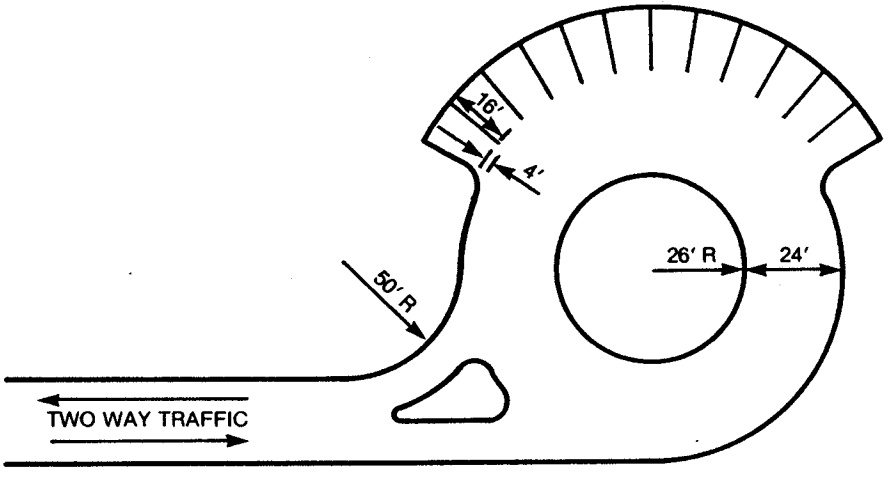



Figure 7-7 Terminal Parking

7-4. Details.

a. Entrances and Exits for parking facilities should be located at least 100 feet from road intersections. A greater distance is preferred. To minimize conflicts with access or circulation road traffic, entrances and exits should be kept to the minimum needed for peak-hour requirements. Except where a large volume of bus or recreational vehicle traffic is anticipated, the minimum inside turning radii for entrances and exists should be 15 feet. For bus and recreational vehicle use, increase the inside radius to 30 feet.

b. Motorcycle and Bicycle parking should be provided within parking lots as needed. Corners of parking lots can be used efficiently for this purpose.

c. Surfacing for parking facilities should be determined on the basis of utility, life cycle cost, aesthetics, and maintenance and operation considerations. From the standpoint of utility and maintenance it is usually desirable to pave parking facilities. It is generally most economical to pave parking facilities at the same time and with the same material used for adjacent recreation roads. When economic or other considerations do not justify paving the parking facility, consideration should be given to paving only the vehicle aisles of multiple lane parking areas and using a surface such as gravel for the parking spaces. This technique can also be used to reduce run-off and thereby aid in erosion control.

d. Curbing should be used when it is necessary to contain drainage and/or channel traffic. Continuous cast in place concrete curbing is easiest to maintain but is more costly initially than some other materials such as asphaltic concrete, railroad ties, and logs. Curbing precludes the need for other wheel stop measures. However, curb cuts and ramps for the physically handicapped are required.

e. Trees can be used very effectively in islands in parking lots to provide shade and relieve visual monatony. Planted earth berms may be used to screen and control the adverse visual impact of parking lots from both adjacent roadways and recreation areas.

f. Traffic Channelization Islands should be used to help define vehicular circulation and to releave visual monotony, especially in large parking areas. Islands separating bays should be a minimum of 12 feet wide and vary to greater dimensions to accommodate existing terrain. Intermediate islands, at least 9 feet wide, should be used in large parking lots. In general, there should be not more than 18 parking spaces in a row without providing intermediate islands. Intermediate islands can and should be used in irregular patterns to help provide an informal character and to preserve existing trees when possible.